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Tanzania: Managing the bushmeat trade – Is law enforcement the answer?

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The bushmeat trade threatens wildlife populations in many parts of Africa compromising the integrity of protected areas, conservation of biodiversity and the future of rural households that depend on wildlife as a source of income or protein. As a result there are frequent calls to tighten enforcement to deter poachers. But limited information is available to determine whether enforcement is the solution given interactions between enforcement agents and poachers, the cost-benefit ratios of actors in the bushmeat trade and the effect of different attributes on the choice between engaging in the bushmeat trade or pursuing alternative income generating options. Limited information is furthermore available about the bushmeat trade is Tanzania where it occurs clandestinely and is difficult to study. Here I synthesize relevant results pertaining to these questions based on three recent papers about the bushmeat trade in the Kilombero Valley of Tanzania.

The studies identified 325 actors involved in the bushmeat trade. These include hunters shooting wildlife; traders buying meat in bulk from hunters selling packages of meat to local consumers or larger clumps of meat to non-local traders passing through the village; and finally retailers hired by the traders to sell meat on the street paid a fixed amount per package sold. Entry barriers in terms of access to firearms and trusted credit networks appeared to limit recruitment into the trade for hunters and traders respectively. Thirty percent of respondents had been apprehended one or more times and 66 percent of arrests resulted in payment of a bribe whereas a fine was paid in 19 percent of cases. In many cases offenders were beaten and/or humiliated. Punishments included being forced to eat raw bushmeat, being beaten unconscious and having trigger fingers broken. Hence, interactions with authorities and enforcement agents had character of illicit taxation more than implementation of wildlife regulations, and rent-seeking enforcement agents used violence to determine the maximum amount that the offender was able to pay as a bribe.

Actor group's cost-benefit ratios were examined using Monte-Carlo simulation and the deterrence model as a theoretical basis. Average simulated cost-benefit ratios increased steeply up the commodity chain from 0.15–0.43 for hunters, 0.56–0.62 for traders and 0.88 for retailers. This suggests that retailers are the actor group for whom the cost-benefit ratios can most easily be manipulated to make participation in the trade unprofitable. However, the impact on the quantity traded is likely to be minimal, as the trade may simply shift to other actors in the value chain. Most traders already sell the meat themselves and entry barriers for retailers are low suggesting that they can easily be replaced. Plotting the average cost-benefit ratio as a function of the likelihood of apprehension illustrates that a considerable increase is required to make the trade non-profitable for hunters and traders. The number of patrols required to make hunting non-profitable to the average hunter is as much as 58 times greater than the current level. If adjusting only the magnitude of the penalty, fines of the order of US$ 1500–20 000 depending on actor group, as compared to the current average fines of US$ 20–105, would be needed to make the trade non-profitable. However, a fine that is not matched by a relevant likelihood of apprehension is clearly meaningless. Hence, increasing the likelihood of apprehension sufficiently to make hunting unprofitable would require a level of patrolling that is unattainable considering the staff and funding available in most protected areas in Tanzania.

The effect of enforcement activities will furthermore depend on consumers' willingness to pay, as suppliers will include increasing cost of fines and bribes in the price of bushmeat. Bushmeat in the Kilombero Valley was significantly cheaper than domestic animal meat and this may

provide room for suppliers to increase prices to cover additional costs of enhanced enforcement efforts. If preference and hence demand for particular species is sufficiently strong, this may furthermore just drive up the price, provide incentive for targeting these species, and encourage a search for ways around increased enforcement and other supply constraints. A price premium was in this respect paid for fresh meat of some species and it is likely that this willingness to pay higher prices per package reflects taste, cultural or other preferences.

A choice experiment was conducted to determine what changes would be most likely to induce actors in the commodity chain to shift to an alternative occupation. Specifically, the 325 respondents were asked to choose between a day of hunting or trading bushmeat and a day of salary-based work under varying conditions of law enforcement patrol frequency and magnitudes of fines for hunting and trading bushmeat, different salaries in the alternative work option and various prices of substitute domestic animal meat, and the donation of a number of cows to the household as an often suggested extension strategy to reduce bushmeat hunting. The results revealed that patrolling and fines had very low influence on the choice to hunt and trade bushmeat. This applied although the ranges were extended beyond those currently relevant in the Kilombero Valley. The most important attribute affecting the choice was the daily salary in the alternative occupation, which represents the opportunity cost of continuing hunting or trading bushmeat relative to taking salary work. Nonlinear prediction at the approximate current level of other attributes indicated the likelihood that the average individual would choose hunting or trading bushmeat could be reduced to 10% if a job opportunity providing a salary of just US$ 3.37 per day was available.

In combination, these studies suggest that a sufficient increase in the likelihood of apprehension is untenable as a sole management strategy given current constraints and that facilitating actors in the bushmeat trade to move into alternative occupations is more likely to enable wildlife populations in the Kilombero Valley to rebound than relying solely on enforcement which has resulted in significant declines of several large game species between 1991 and 2009. This suggests that perhaps anti-poaching policies should be directed more at increasing the opportunity cost of poaching by making better alternative economic opportunities available. At the same time, the redirection of work effort would produce compensating production values in the new occupations. These efforts should be complemented by interventions targeted at reducing the price of domestic animal meat, addressing corruption of enforcement staff, limiting the availability of firearms as well as increasing the capacity for law enforcement.

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Further reading:

Martin Reinhardt Nielsen, Henrik Meilby and Carsten Smith-Hall. 2014. How could the bushmeat trade in the Kilombero Valley of Tanzania be regulated? Insights from the rural value chain. Oryx. (available at CJO2014. doi:10.1017/S003060531400009X).

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